

ABSTRACT OF THE DISCLOSURE

A light transmission system includes a laser, an optical fiber, and a transfer lens. The transfer lens transfers light emitted by the laser into the optical fiber. The transfer lens includes a diffractive surface for receiving and collimating the light originating from the laser. The diffractive surface is defined by a surface function that includes a first phase function having angular symmetry and a second phase function having radial symmetry. The second phase function includes a cusp region with a discontinuous slope therein. The transfer lens provides reflection management so that light reflected from the end of the optical fiber is not focused at a location at which light is emitted by the laser and also favorable launch conditions so that light launched into the optical fiber avoids index anomalies along the axis of the optical fiber.